

Using Bees to Disseminate BlightBan™ and Agri-mycin™ to Apple for the Control of Fire Blight 1998

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INTRODUCTION

Delivery of different formulations of beneficial microorganisms can be accomplished using conventional sprayers or with bees. Honey bees have been used to disseminate beneficial fungi, bacteria and viruses to apple, pear, strawberry and clover for control of diseases and insects. Over the last few years, we have used bumble bees and honey bees to deliver a powdered formulation of *Trichoderma harzianum* to strawberry flowers and results on *Botrytis* control and yield enhancement have been encouraging.

Recently work in Oregon and Utah showed that honey bees could be used to spread beneficial bacteria to pome fruits for the control of fire blight. Because of this strong initial data, a preliminary test was conducted in 1996 using BlightBan™ alone. This did not provide sufficient control of the fire blight bacteria *Erwinia amylovora* due to the high inoculum levels already established in the orchard and ill scheduled sprays. There were several reasons why this test may have failed: 1) this orchard had been used for fire blight research for several years prior to this experiment and inoculum levels were high; and 2) the *E. amylovora* may have already established itself on the flower before the beneficial bacteria *Pseudomonas fluorescens* was applied. There is only a certain amount of space available for bacteria to develop on the open flower, so it is important to apply *P. fluorescens* sprays before inoculum is established.

Realizing the problems that were encountered on the first test, we wanted to test BlightBan™, *P. fluorescens* A506 mixed with Agri-mycin™ 17WP. Since this strain of *P. fluorescens* is resistant to streptomycin, the addition of the streptomycin is designed to kill other bacteria that may already be present on the flower so that the *P. fluorescens* can establish itself. Therefore the objective of this study is to evaluate the effectiveness of spraying and using honey bees to disseminate *P. fluorescens* A506 and streptomycin sulfate to 'Royal Gala' apple trees for the control of *E. amylovora*.

For a printed copy of the entire report, please contact the NYS IPM office at:

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